

[3P]Social Behavior

Fri. Jul 31, 2020 1:30 PM - 3:30 PM Poster Session

Videos are available throughout the meeting period.*[3P-189]The blockade of oxytocin receptors in the paraventricular thalamus reduces maternal crouching behavior over pups in lactating mice.**

*Akiyuki Watarai^{1,2}, Satoko Tsutaki², Katsuhiko Nishimori³, Teruhiro Okuyama¹, Kazutaka Mogi², Takefumi Kikusui⁴ (1.Laboratory of Behavioral Neuroscience, Institute for Quantitative Biosciences (IQB), Univ of Tokyo, Tokyo, Japan, 2.Laboratory of Companion Animal Research, School of Veterinary Medicine, Azabu University, Sagamihara, Japan, 3.Department of Obesity and Internal Inflammation, Fukushima Medical University, Fukushima City, Japan, 4.Laboratory of Human-Animal Interaction and Reciprocity, School of Veterinary Medicine, Azabu University, Sagamihara, Japan)

Oxytocin (OT) systems contribute to the elicitation of stereotypic maternal behaviors. OT peptide-expressing neurons are predominantly localized in the hypothalamus, whereas OT receptor (OTR)-expressing neurons are widely distributed throughout the brain. Among those OTR-expressing regions, the paraventricular thalamus (PVT) consists of heterogeneous neuropeptide-responsive neurons critical for appetitive motivation, food intake control, and social behaviors; however, the precise distribution of OTR-expressing neurons within the PVT and whether these neurons are involved in maternal behaviors in mice are unknown. The distribution of OTR-expressing neurons was examined in an OTR-Venus transgenic line expressing a fluorescent protein controlled by the OTR promoter. The number of Venus expressing neurons was higher in the posterior PVT (pPVT) than in the anterior PVT (aPVT). When OTR-Venus dams were exposed to pups, the number of double-labelled neurons expressing both OTR-Venus and a marker of neuronal activity (c-Fos) was increased in the pPVT compared to non-exposed dams, while the aPVT remained unchanged. To investigate whether OT signaling in the pPVT is essential for maternal behaviors, an OT antagonist (OTA) was transiently or chronically infused into the pPVT of lactating dams during the postpartum period. Although the transient OTR blockade did not affect maternal behaviors, a chronic OTR blockade specifically reduced the duration of crouching behavior over pups. Taken together, these findings suggest that OTR-expressing neurons in the pPVT are involved in maternal crouching behavior.